

EXHIBIT 12

May 6, 2021

TABLE OF CONTENTS

Page(s)

VOLUME I OF IV

Stipulated Protective Order, Dkt. No. 101 (Feb. 2, 2017)

JUDGMENT, VERDICT, ORDERS

Final Ruling on Claim Construction, Dkt. No. 213 (July 12, 2017)	Appx1- Appx35
Final Ruling on Plaintiff's Motion for Partial Summary Judgment, Dkt. No. 830 (Dec. 28, 2018)	Appx36- Appx63
Final Ruling on Defendants' Motion for Summary Judgment on Invalidity Under 35 U.S.C. § 101 of Asserted Claims of U.S. Patent No. 7,916,781, Dkt. No. 849 (Jan. 18, 2019)	Appx64- Appx100
Final Rulings on Plaintiff's Motion for Summary Judgment as to No Inequitable Conduct, Dkt. No. 1518 (July 1, 2019)	Appx101- Appx112
Order regarding Motions for Partial Summary Judgment, Motion for Certification Under 28 U.S.C. §1292(b), Defendants' Motion for Partial Reconsideration, and Plaintiff's Motion to Exclude [Dkt. Nos. 844, 845, 887, 888, and 1024], Dkt. No. 1432 (Aug. 9, 2019)	Appx113- Appx137
Civil Minutes regarding <i>Daubert</i> Motions, Dkt. No. 1630 (Nov. 21, 2019) [FILED UNDER SEAL]	Appx138- Appx155
Amended Civil Minutes of Pretrial Conference, Dkt. No. 1926 (Dec. 30, 2019)	Appx156- Appx166
Civil Minutes of Pretrial Conference, Dkt. No. 1919 (Jan. 9, 2020)	Appx167- Appx169
Civil Minutes of Jury Trial, Day 3 with Claim Construction Order, Dkt. No. 1957 (Jan. 16, 2020)	Appx170- Appx171

	Page(s)
Final Jury Instructions, Dkt. No. 2112 (Jan. 29, 2020)	Appx172- Appx189
Jury Verdict, Dkt. No. 2114 (Jan. 29, 2020)	Appx190- Appx193
Civil Minutes of Telephonic Hearing on Defendants’ Motion for Judgment as a Matter of Law (Renewed) and/or New Trial, Dkt. No. 2238 (July 21, 2020) [FILED UNDER SEAL]	Appx194- Appx240
Civil Minutes of Telephonic Hearing on CalTech’s Motion for Supplemental Damages, Interest, Attorneys’ Fees, and a Permanent Injunction or On-Going Royalties, Dkt. No. 2239 (July 21, 2020) [FILED UNDER SEAL]	Appx241- Appx251
Judgment, Dkt. No. 2245 (Aug. 3, 2020)	Appx252- Appx254
PATENTS-IN-SUIT	
U.S. Patent No. 7,116,710	Appx255- Appx266
U.S. Patent No. 7,421,032	Appx267- Appx280
U.S. Patent No. 7,916,781	Appx281- Appx292
DOCKET SHEET	
Civil Docket Sheet for <i>The California Institute of Technology v. Broadcom Limited et al.</i> , No. 2:16-cv-03714-GW-AGR (C.D. Cal.)	Appx293- Appx539
TRIAL TRANSCRIPTS	
Trial Transcript, January 15, 2020 (morning session), Dkt. No. 2151 (Apr. 2, 2020)	Appx2212- Appx2282



UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

CALIFORNIA INSTITUTE OF
TECHNOLOGY,

Plaintiff,

v.

BROADCOM LIMITED AND
APPLE, INC.,

Defendants.

) No. CV 16-3714-GW-AGR_x

) **FINAL JURY INSTRUCTIONS**

Final Jury Instructions

I. Introductory Instructions

Members of the Jury: Now that you have heard all of the evidence, it is my duty to instruct you on the law that applies to this case. Each of you has received a copy of these instructions that you may take with you to the jury room.

It is your duty to find the facts from all the evidence in the case. To those facts you will apply the law as I give it to you. You must follow the law as I give it to you whether you agree with it or not. And you must not be influenced by any personal likes or dislikes, opinions, prejudices, or sympathy. That means that you must decide the case solely on the evidence before you. You will recall that you took an oath to do so.

Please do not read into these instructions or anything that I may say or do or have said or done that I have an opinion regarding the evidence or what your verdict should be.

This case is a civil lawsuit alleging patent infringement. In this case, the California Institute of Technology, which I will refer to as “Caltech,” is suing Defendants Apple Inc., Broadcom Corporation, Broadcom Limited, and Avago Technologies, Limited, for what it claims is unauthorized use of three Caltech patents, in products sold by Defendants. Broadcom Corporation, Broadcom Limited, and Avago Technologies, Limited are related entities and can be treated as a single defendant which I will refer to as “Broadcom.”

Caltech owns three patents issued by the United States Patent and Trademark Office in 2006, 2008 and 2011, related to encoders and decoders that use a specific type of error correction coding. Caltech claims and bears the burden of proof by a preponderance of the evidence that Apple’s products that support Wi-Fi (including its iPhones, iPads, iMacs, MacBook, and AppleTV) and Broadcom’s chips (that support Wi-Fi) infringe Caltech’s patents.

Broadcom and Apple claim that their products do not use Caltech’s technology, and that their products instead use a form of error correction coding that is different from the specific type of error correction coding claimed by Caltech’s patents.

Caltech is seeking what it believes to be a reasonable royalty from Broadcom and Apple to compensate for the alleged infringement. Broadcom and Apple deny that Caltech is entitled to any damages because: (1) they deny infringement, and (2) they believe that what Caltech is seeking is not reasonable.

When a party has the burden of proving any claim or affirmative defense by a “preponderance of the evidence,” it means you must be persuaded by the evidence that the claim or affirmative defense is more probably true than not true.

You should base your decision on all of the evidence, regardless of which party presented it. Unless I instruct you otherwise, all issues in this case must be established by a preponderance of the evidence.

You should decide the case as to each Defendant separately. Unless otherwise stated, the instructions apply to all parties.

The evidence you are to consider in deciding what the facts are consists of:

1. the sworn testimony of any witness;
2. the exhibits that are admitted into evidence;
3. any facts to which the lawyers have agreed; and
4. any facts that I have instructed you to accept as proved.

In reaching your verdict, you may consider only the testimony and exhibits received into evidence. Certain things are not evidence, and you may not consider them in deciding what the facts are. I will list them for you:

1. Arguments and statements by lawyers are not evidence. The lawyers are not witnesses. What they have said in their opening statements, closing arguments and at other times is intended to help you interpret the evidence, but it is not evidence. If the facts as you remember them differ from the way the lawyers have stated them, your memory of them controls.

2. Questions and objections by lawyers are not evidence. Attorneys have a duty to their clients to object when they believe a question is improper under the rules of evidence. You should not be influenced by the objection or by the court's ruling on it.

3. Testimony that is excluded or stricken, or that you have been instructed to disregard, is not evidence and must not be considered.

4. Anything you may have seen or heard when the court was not in session is not evidence. You are to decide the case solely on the evidence received at the trial.

Evidence may be direct or circumstantial. Direct evidence is direct proof of a fact, such as testimony by a witness about what that witness personally saw or heard or did. Circumstantial evidence is proof of one or more facts from which you could find another fact. You should consider both kinds of evidence. The law makes no distinction between the weight to be given to either direct or circumstantial evidence. It is for you to decide how much weight to give to any evidence.

There are rules of evidence that control what can be received into evidence. When a lawyer asked a question or offers an exhibit into evidence and a lawyer on the other side thought that it was not permitted by the rules of evidence, that lawyer raised an objection. If I overruled the objection, the question was answered or the exhibit received. If I sustained the objection, the question was not answered, and the exhibit not admitted. Whenever I sustained an objection to a question, you must ignore the question and must not guess what the answer might have been.

Sometimes I may order that evidence be stricken from the record and that you disregard or ignore that evidence. That means when you are deciding the case, you must not consider the stricken evidence for any purpose.

In deciding the facts in this case, you may have to decide which testimony to believe and which testimony not to believe. You may believe everything a witness says, or part of it, or none of it. In considering the testimony of any witness, you may take into account:

1. the opportunity and ability of the witness to see or hear or know the things testified to;

2. the witness's memory;
3. the witness's manner while testifying;
4. the witness's interest in the outcome of the case, if any;
5. the witness's bias or prejudice, if any;
6. whether other evidence contradicted the witness's testimony;
7. the reasonableness of the witness's testimony in light of all the evidence; and
8. any other factors that bear on believability.

Sometimes a witness may say something that is not consistent with something else he or she said. Sometimes different witnesses will give different versions of what happened. People often forget things or make mistakes in what they remember. Also, two people may see the same event but remember it differently. You may consider these differences, but do not decide that testimony is untrue just because it differs from other testimony.

However, if you decide that a witness has deliberately testified untruthfully about something important, you may choose not to believe anything that witness said. On the other hand, if you think the witness testified untruthfully about some things but told the truth about others, you may accept the part you think is true and ignore the rest.

The weight of the evidence as to a fact does not necessarily depend on the number of witnesses who testify. What is important is how believable the witnesses were, and how much weight you think their testimony deserves.

During your deliberations, you will not have a transcript of the trial testimony.

You have been allowed to take notes during the trial to help you remember the evidence. If you did take notes, please keep them to yourself until you go to the jury room to decide the case. When you leave, your notes should be left in the jury room. No one will read your notes.

Whether or not you take notes, you should rely on your own memory of the evidence. Notes are only to assist your memory. You should not be overly influenced by your notes or those of other jurors.

A deposition is the sworn testimony of a witness taken before trial. The witness is placed under oath to tell the truth and lawyers for each party asked questions. The questions and answers are recorded either in written form or by means of a video recording.

Certain depositions were presented to you in the form of playing the recording of the witness's deposition testimony in lieu of those witnesses' live testimony during the trial. Insofar as possible, you should consider deposition testimony, presented to you in court in lieu of live testimony, in the same way as if the witness had been present to testify. During the playing of those depositions, not only were you able to see and hear that testimony but also a transcription of the testimony was simultaneously scrolled at the bottom of the screen to assist you when listening to the recordings. However, bear in mind that the recording is the evidence, not the transcript. If you heard something different from what appeared in the transcript, what you heard is controlling.

During the trial, you heard testimony from certain witnesses who because of their education,

training and/or experience were allowed to give opinions on issues in the case and the reasons for their opinions.

Such opinion testimony should be judged like any other testimony. You may accept it or reject it, and give it as much weight as you think it deserves, considering the witness's education and experience, the reasons given for the opinion, and all the other evidence in the case.

Certain charts and summaries *not* admitted into evidence have been shown to you in order to help explain the contents of books, records, documents, or other evidence in the case. Charts and summaries are only as good as the underlying evidence that supports them. You should, therefore, give them only such weight as you think the underlying evidence deserves.

Certain charts and summaries have been admitted into evidence to illustrate information brought out in the trial. Charts and summaries are only as good as the testimony or other admitted evidence that supports them. You should, therefore, give them only such weight as you think the underlying evidence deserves.

Corporations and other legal entities are allowed to sue and be sued in court. All parties are equal before the law and a corporation is entitled to the same fair and conscientious consideration by you as any party.

Under the law, a corporation is considered to be a person. It can only act through its employees, agents, directors, or officers. Therefore, a corporation is responsible for the acts of its employees, agents, directors, and officers performed within the scope of authority.

From time to time during the trial, the parties presented information that is confidential to one or more of the parties. At those times, it became necessary for measures to be taken to protect the confidentiality of the information, such as sealing the courtroom. The parties agreed to these procedures to protect the confidentiality of the information and undue weight should not be given to these measures.

Each of you are required to maintain the confidentiality of the information that was presented under seal. You may discuss this information in your deliberations with other jurors, but may not discuss it with any other individuals or after the completion of your jury service.

II. Stipulated Facts

The parties have agreed to the following and you must therefore treat these facts as having been proved.

1. Caltech is the owner of all right, title and interest in U.S. Patent No. 7,116,710.
2. Caltech is the owner of all right, title and interest in U.S. Patent No. 7,421,032.
3. Caltech is the owner of all right, title and interest in U.S. Patent No. 7,916,781.
4. U.S. Patent No. 7,116,710 (the "'710 patent") is titled "Serial Concatenation of

Interleaved Convolution Codes Forming Turbo-Like Codes.”

5. The ’710 patent issued on October 3, 2006.
6. The named inventors listed on the ’710 patent are Hui Jin, Aamod Khandekar, and Robert J. McEliece.
7. The ’710 patent expires on August 23, 2022.
8. U.S. Patent No. 7,421,032 (the “’032 patent”) is titled “Serial Concatenation of Interleaved Convolution Codes Forming Turbo-Like Codes.”
9. The ’032 patent issued on September 2, 2008.
10. The named inventors listed on the ’032 patent are Hui Jin, Aamod Khandekar, and Robert J. McEliece.
11. The ’032 patent expires on August 18, 2020.
12. U.S. Patent No. 7,916,781 (the “’781 patent”) is titled “Serial Concatenation of Interleaved Convolution Codes Forming Turbo-Like Codes.”
13. The ’781 patent issued on March 29, 2011.
14. The named inventors listed on the ’781 patent are Hui Jin, Aamod Khandekar, and Robert J. McEliece.
15. The ’781 patent expires on October 16, 2021.
16. Broadcom Corporation is a California corporation with a principal place of business at 5300 California Avenue, Irvine, California 92617.
17. Avago Technologies Ltd. is a corporation organized under the laws of the country of Singapore with principal places of business at 1320 Ridder Park Dr., San Jose, California 95131 and 1 Yishun Avenue 7, Singapore 768923.
18. Apple Inc. is a corporation organized under the laws of the State of California, with principal place of business at One Apple Park Way, Cupertino, California 95014.
19. The California Institute of Technology is a non-profit private university located in Pasadena, California.
20. The parties entered a stipulation identifying the representative products for purposes of the infringement and non-infringement analysis.

The parties have further agreed to the following:

1. For purposes of evaluating infringement or noninfringement of the claims asserted in this case, the RU encoder is representative of the Prediction Correction encoder (also known as the “PC encoder”). No evidence regarding the Prediction Correction Encoder shall be offered or discussed at trial.
2. If Caltech proves by a preponderance of the evidence that any accused product meets all limitations of one or more asserted claims based on its incorporation of the RU

encoder shall constitute proof that all other accused products incorporating the RU encoder or the PC encoder, as listed in Exhibit 1, Sections II and IV, meet all limitations of the same one or more claims.

3. If Caltech fails to prove by a preponderance of the evidence that any accused product meets all limitations of one or more asserted claims based on its incorporation of the RU encoder, that failure shall mean that all other accused products incorporating the RU encoder or the PC encoder, as listed in Exhibit 1, Sections II and IV, also do not meet all limitations of the same one or more claims.

4. For purposes of evaluating infringement or noninfringement, the Permuted Layer decoder is representative of the Submatrix Layer decoder with regard to the limitations of claim 18 of the '032 patent. No evidence regarding the Sub-Matrix Layer decoder shall be offered or discussed at trial.

5. If Caltech proves by a preponderance of the evidence that any accused product meets all limitations of claim 18 of the '032 patent based on its incorporation of the Permuted Layer decoder shall constitute proof that all other accused products incorporating the Permuted Layer decoder or the Sub-Matrix Layer decoder, as listed in Exhibit 1, Sections V and VI, meet all limitations of the same claim.

6. If Caltech fails to prove by a preponderance of the evidence that any accused product meets all limitations of claim 18 of the '032 patent based on its incorporation of the Permuted Layer decoder, that failure shall mean that all other accused products incorporating the Permuted Layer decoder or the Sub-Matrix Layer decoder, as listed in Exhibit 1, Sections V and VI, also do not meet all limitations of the same claim.

III. Patents in General and the Three Patents Involved in This Case

Patents are granted by the United States Patent and Trademark Office (referred to herein as "PTO"). A valid United States patent gives the patent holder the right to prevent others from making, using, offering to sell, or selling the patented invention within the United States, or from importing it into the United States, during the term of the patent without the patent holder's permission. A violation of the patent holder's rights is called "infringement." The patent holder can try to enforce its patent against persons believed to be infringers by means of a lawsuit filed in federal court.

This case involves three patents that were issued by the PTO which were "assigned" to Caltech. An assignment is the transfer of ownership of a patent application or a patent from one entity or person to another.

The three patents are: (1) Patent No. 7,116,710 issued on October 3, 2006, (2) Patent No. 7,421,032 issued on September 2, 2008, and (3) Patent No. 7,916,781 issued on March 29, 2011. Copies of the three patents are included in the Jury Notebook at Tabs 2, 3 and 4, respectively. Henceforth, the patents will be referred to by their last three digits – for example the 7,116,710 patent will be called the '710 Patent.

A patent and the claims contained in the patent issued by the PTO are presumed to be valid. The validity or invalidity of the three patents herein is not an issue in this case. Your job in this trial is to determine whether Caltech has proved by a preponderance of the evidence that Broadcom and/or Apple infringed any of the claims in Caltech's patents and, if so, the amount of damages to be awarded because of the acts of infringement.

A patent usually has three main parts. The first part will contain informational items such as (but not limited to) the patent number, the date the patent application was filed, the date it was issued, the names of the inventors of the patent, whether the patent has been assigned, a list of other patent documents that the PTO looked at in evaluating the patent application, and a section sometimes called "Other Publications" which sets out books and articles which discuss the technology involved and what was generally known about the specific area at the time of the application. For example, if you look at the '710 Patent at Tab 2 at the pages marked at the bottom as JTX 1-1 and JTX 1-2, that is the first part of that patent.

The second part of a patent is referred to as the "specification" which typically includes: (1) a paragraph entitled "Abstract" which briefly summarizes the invention, (2) a background section that describes the nature of the problem the invention is supposed to solve, (3) one or more drawings called "figures" that assist in delineating the invention and/or illustrate various aspects of the application, and (4) a detailed description of one or more embodiments of the invention. An embodiment is a specific device or method that uses the invention; for example as to Thomas Edison's lightbulb patent, it would be a particular form of a lightbulb. In the '710 patent, the specification section begins at the lower right-hand corner of page JTX 1-1, skips page JTX 1-2, and goes from JTX 1-3 through 1-11. You will notice that starting on page JTX 1-8, there are two columns which are numbered sequentially on each page and there are numbers in the center of each page going from 5 to 65. Those numbers are to assist in locating references; for example in the '710 patent, a reference to column 6 lines 33 through 49 would be to Table 1 on page JTX 1.10.

The third (and most important) part of a patent is a statement of the "claims" in the patent. The claims are what give the public notice of the definitions or boundaries of the invention. They are similar to the description of property you may have seen in a deed, referring to precise measurements taken on the ground. The claims are numbered and appear at the end of the patent document. Each claim constitutes a separate definition of the invention. For example, as to the '710 Patent, there are 33 separate claims numbered from 1 to 33 on page JTX 1-11 starting on Column 7 line 14 and ending on Column 8 line 63.

A claim sets forth, in words, a set of requirements. Each claim sets forth its requirements in a single sentence. If a device or a method satisfies each of these requirements, then it is covered by the claim.

The coverage of a patent is assessed claim-by-claim. In patent law, the requirements of a claim are often referred to as "claim elements" or "claim limitations." When a thing (such as a product or a process) meets all of the requirements of a claim, the claim is said to "cover" that thing, and that thing is said to "fall" within the scope of that claim. In other words, a claim covers

a product or process where each of the claim elements or limitations is present in that product or process.

Claims can either be “independent” or “dependent.” An “independent claim” sets forth all of the requirements that must be met in order to be covered by that claim. Thus, it is not necessary to look at the language in any other claim to determine what an independent claim covers. In this case, claims 11 and 18 of the ’032 patent, and claim 13 of the ’781 patent are each independent claims.

Claims 20 and 22 of the ’710 patent are “dependent claims.” A dependent claim does not itself recite all of the requirements of the claim but refers to another claim for some of its requirements. In this way, the claim “depends” on another claim. A dependent claim incorporates all of the requirements of the claim(s) to which it refers. The dependent claim then adds its own additional requirements. To determine what a dependent claim covers, it is necessary to look at both the dependent claim and any other claim(s) to which it refers. A product or method that meets all of the requirements of both the dependent claim and the claim(s) to which it refers is covered by that dependent claim. Normally, a dependent claim will begin by referencing the earlier claim which it is incorporating. For example, claim 20 of the ’710 Patent is a dependent claim because it begins by including “the coder of claim 15.”

IV. Claims Construction

Before you decide whether Apple and/or Broadcom have infringed any of the asserted claims of the ’710, ’032, and ’781 Patents, you will need to understand the patent claims. As I mentioned at the beginning of the case, the patent claims are the numbered sentences at the end of the patent that describe the boundaries of the patent’s protection. It is my job as judge to explain to you the meaning of any language in the claims that needs interpretation.

I have interpreted the meaning of some of the language in the patent claims involved in this case. I handed out a document earlier in this case reflecting those meanings and instructed you to place it in your juror notebook. It should be located at Tab 9 of your juror notebook. You must accept those interpretations as correct.

Those terms and their definitions are as follows:

The Tanner Graph diagram that is claimed in Claims 11 and 18 of the ’032 Patent has been construed as “a graph representing an IRA code as a set of parity checks where every message bit is repeated, at least two different subsets of message bits are repeated a different number of times, and check nodes, randomly connected to the repeated message bits, enforce constraints that determine the parity bits.”

The term “random permutation” as it appears in the Tanner Graph in Claims 11 and 18 of the ’032 Patent has been construed as “changing the order of data elements by a purely random or pseudo random process.”

The term “repeat” as it appears in Claim 15 of the ’710 Patent, which is incorporated into Claims 20 and 22 of the ’710 Patent, and as it appears in the Court’s construction of the Tanner Graph in Claims 11 and 18 of the ’032 Patent has been construed as “generation of additional bits, where generation can include, for example, duplication or reuse of bits.”

The term “low-density generator matrix coder” as it appears in Claim 20 of the ’710 Patent has been construed as “coder that generates output bits, where process of generating output bits comprises multiplying a low-density matrix by input bits, and the output bits outputted by the coder can be less than, equal to, or more than the number of input bits.”

The term “irregularly” as it appears in Claim 15 of the ’710 Patent, which is incorporated into Claims 20 and 22 of the ’710 Patent, has been construed as “a different number of times.”

The term “scramble” as it appears in Claim 15 of the ’710 Patent, which is incorporated into Claims 20 and 22 of the ’710 Patent, and the term “permute” as it appears in Claims 11 and 18 of the ’032 Patent, have each been construed as “changing the order of data elements.”

The term “sums of bits in subsets of the information bits” as it appears in Claim 13 of the ’781 Patent has been construed as “the result(s) of adding together two or more information bits from a subset of information bits.”

My interpretation of the language should not be taken as an indication that I have a view regarding the issue of infringement. The decisions regarding infringement are yours to make.

For a claim term for which I have not provided a definition, you should apply the ordinary and customary meaning as understood by a person of ordinary skill in the art at the time of the invention when read in the context of the specification and prosecution history.

In these instructions, when there is a reference to a “person of ordinary skill in the art,” the reference is to a person who is working in the technology of the asserted invention at the time of the filing date of the patent. In deciding the level of ordinary skill, you should consider all the evidence introduced at trial, including:

- (1) the levels of education and experience of persons working in the field;
- (2) the types of problems encountered in the field; and
- (3) the sophistication of the technology.

V. Caltech’s Infringement Claims

I will now instruct you concerning patent infringement. Infringement is assessed on a claim-by-claim basis. Therefore, there may be infringement as to one claim but no infringement as to another.

In this case, Caltech has asserted two types of infringement: (1) direct infringement which includes both “literal infringement” and infringement under the “doctrine of equivalents,” and (2) active inducement of a third party to infringe the patent(s), sometimes referred to as “indirect infringement.” Additionally, Caltech has asserted that certain of the acts of infringement were

“willful.”

Caltech asserts that Broadcom and Apple have directly infringed Claims 20 and 22 of its '710 Patent, Claims 11 and 18 of its '032 Patent, and Claim 13 of its '781 Patent by making, importing, using selling and/or offering for sale certain products within the United States. As to Apple, the alleged infringing products are Apple's devices which support Wi-Fi (including its iPhones, iPads, iMacs, MacBooks, AppleTV, and Airport Routers) and which incorporate Broadcom's chips (that support Wi-Fi). As to Broadcom, the alleged infringing products are those purportedly infringing chips that support WI-Fi.

Caltech also contends that Broadcom and Apple have actively induced infringement of these claims of Caltech's asserted patents by others.

Broadcom and Apple deny that they have infringed the asserted claims of Caltech's patents.

Your job is to decide whether Caltech has proved by a preponderance of the evidence any of the alleged acts of infringement.

If you decide that any claim(s) of the patent(s) has been infringed, you will then need to decide any money damages to be awarded to Caltech to compensate it for the infringement. You will also need to make a finding as to whether the infringement was “willful.” If you decide that any infringement was willful, that decision should not affect any damage award you make. I will take willfulness into account later.

I will now instruct you on the rules you must follow in deciding whether Caltech has proven that either Broadcom or Apple has infringed one or more of the asserted claims of the '710, '032 and/or '781 Patents. To prove infringement of any claim, Caltech must persuade you that it is more likely than not that Apple and/or Broadcom has infringed a particular claim.

A. Direct Infringement

A patent's claims define what is covered by the patent. A party directly infringes a patent if its product or method is covered by at least one claim of the patent.

Deciding whether a claim has been directly infringed is a two-step process. The first step is to decide the meaning of the patent claim. I have already instructed you as to the meaning of certain words and terms in the asserted patent claims.

The second step is to decide whether Apple and/or Broadcom have made, used, sold, offered for sale, or imported within the United States a product covered by Claims 20 or 22 of the '710 Patent, or Claims 11 or 18 of the '032 Patent, or whether Apple and/or Broadcom practice within the United States Claim 13 of the '781 patent.

You, the jury, are to make these decisions. With one exception, you must consider each

of the asserted claims of each of the three Patents separately and individually, and decide whether the accused Apple and/or Broadcom products and/or methods infringe that claim.

The one exception to considering claims individually concerns dependent claims. A dependent claim includes all the requirements of the particular independent claim it depends from, plus additional requirements of its own. As a result, if you find that an independent claim is not infringed, you must also find that its dependent claims are not infringed. On the other hand, if you find that an independent claim has been infringed, you must still separately decide whether the additional requirements of its dependent claims have also been infringed.

Whether or not Broadcom or Apple knew its product(s) infringed or even knew of the Caltech's patents does not matter in determining direct infringement. A defendant can directly infringe a patent even though it is unaware that what it is doing amounts to infringement. Further, you heard evidence that the accused products may have been developed through independent research. This is not relevant to the question of whether an accused product infringes. An independently developed product or process that falls within the scope of the asserted patent claims nevertheless infringes. However, independent development can be considered in your determination of whether an infringement was willful.

There are two ways in which a patent claim may be directly infringed. A claim may be "literally" infringed, or it may be infringed under the "doctrine of equivalents." The following instructions will provide more detail on these two types of direct infringement.

1) Literal Infringement

To decide whether Apple's and/or Broadcom's products and/or methods literally infringe Claims 20 and 22 of the '710 Patent, Claims 11 and 18 of the '032 Patent, and/or Claim 13 of the '781 Patent, you must compare the products and methods with the patent claims and determine whether every requirement of the claim is included in the product or method. If so, that product or method literally infringes that claim. If, however, the product or method does not have every requirement in the patent claim, that product or method does not literally infringe the claim. You must decide literal infringement for each asserted claim separately.

In this case, the asserted patent claims use the term "comprising." If the patent claim uses the term "comprising," that patent claim is to be understood as an "open" claim. An open claim may be infringed as long as every requirement in the claim is present in Broadcom's or Apple's product or method. The fact that Broadcom's or Apple's product or method also includes other parts or steps will not avoid infringement, as long as it has every requirement in the patent claim.

2) Infringement under the Doctrine of Equivalents

If you decide that one of Apple's or Broadcom's products or methods does not literally infringe an asserted patent claim, you must then decide whether that product or method infringes the asserted claim under what is called the "doctrine of equivalents."

Under the doctrine of equivalents, the product or method infringes an asserted patent claim if it includes parts or steps that are identical or equivalent to the requirements of the claim. If the product or method is missing an identical or equivalent part or step to even one requirement of the asserted patent claim, the product or method cannot infringe the claim under the doctrine of equivalents. Thus, in making your decision under the doctrine of equivalents, you must look at each individual requirement of the asserted patent claim and decide whether the product or method has either an identical or equivalent part or step to that individual claim requirement.

A part or step of a product or method is equivalent to a requirement of an asserted claim if a person of ordinary skill in the field would think that the differences between the product or method and the requirement were not substantial as of the time of the alleged infringement.

Changes in technique or improvements made possible by technology developed after the patent application is filed may still be equivalent for the purposes of the doctrine of equivalents if it still meets the other requirements of the doctrine of equivalents set forth in this instruction.

One way to decide whether any difference between a requirement of an asserted claim and a part or step of the product or method is not substantial is to consider whether, as of the time of the alleged infringement, the part or step of the product or method performed substantially the same function, in substantially the same way, to achieve substantially the same result as the requirement in the patent claim.

Caltech contends that Broadcom and/or Apple infringe the following claim requirements under the doctrine of equivalents:

- “repeat” and
- “repeat ... irregularly”

You may not use the doctrine of equivalents in analyzing infringement for any other claim elements.

3) Sale or Importation within the United States

An alleged infringer is liable for direct infringement of a claim if the patent holder proves by a preponderance of the evidence that the infringer, without the patent holder’s authorization, imports, offers to sell, sells, or uses within the United States.

Broadcom and/or Apple may infringe Caltech’s asserted patents by agreeing to sell a product or by using a method within the United States covered by a claim of Caltech’s Asserted Patents. Sales may be found to have occurred in the United States where a substantial level of sales activity occurs here, even for products manufactured, delivered, and used entirely abroad.

Whether a sale occurs in the United States may depend on facts including where the legal commitment to buy and sell occurred and where other substantial activities of the sales transactions occurred, such as negotiating and contracting. A sale agreed to in the United States can be completed in the United States even though delivery is to be made outside the United States in the future. Also, a sale can occur in the United States based on the “design win” process. In a design win market, the sales are design wins made in the United States where the design of the products or method occurs in the United States and the buyer selects that design in the United States, not a steady flow of discrete product sales outside the United States. The United States sales cycle leading to design wins could also trigger United States sales.

However, if substantial activities of a sales transaction, including the final formation of a contract for sale encompassing all essential terms as well as the delivery and performance under that sales contract occurs entirely outside the United States, then pricing and contracting negotiations in the United States alone do not constitute or transform those extraterritorial activities into a sale within the United States.

B. Inducing Patent Infringement (Indirect Infringement)

Caltech alleges that Broadcom and Apple are each liable for infringement by actively inducing a third party to directly infringe the asserted claims. As with direct infringement, you must determine whether there has been active inducement on a claim-by-claim basis.

In order to be liable for inducing infringement, Broadcom or Apple must have:

- (1) intentionally taken action that actually induced direct infringement in the United States;
- (2) been aware of Caltech's Asserted Patents; and
- (3) known that the acts it was causing would infringe the patent.

If you find that Broadcom (or Apple) was aware of the patent, but believed that the acts it encouraged did not infringe that patent, it cannot be liable for inducement.

In order to establish active inducement of infringement, it is not sufficient that the third party itself directly infringed the claim. Nor is it sufficient that Broadcom or Apple was aware of the act(s) by the third party that allegedly constitute the direct infringement. Rather, in order to find active inducement of infringement, you must find either that Broadcom or Apple specifically intended the third party to infringe the patent, or that Broadcom or Apple believed that there was a high probability that the third party would infringe the patent, but deliberately avoided learning the infringing nature of the third party's acts. The mere fact, if true, that Broadcom or Apple knew or should have known that there was a substantial risk that the third party acts would infringe the patent would not be sufficient for active inducement of infringement.

C. Willful Infringement

In this case, Caltech argues that Broadcom and Apple willfully infringed Caltech's patents *after* this lawsuit had been filed against them.

To prove willful infringement, Caltech must first persuade you that Broadcom or Apple infringed a claim of Caltech's patents. The requirements for proving infringement were discussed in my prior instructions.

In addition, to prove willful infringement of a claim, Caltech must persuade you that it is more likely true than not true that Broadcom or Apple intentionally ignored or recklessly disregarded that claim. You must base your decision on Apple's and Broadcom's knowledge and actions at the time of any infringement occurring after Caltech filed this lawsuit. Evidence that Broadcom or Apple had knowledge of the patent at the time of infringement by itself is not sufficient to show willfulness. Rather, to show willfulness, you must find that Broadcom or Apple engaged in additional conduct evidencing deliberate or reckless disregard of Caltech's patent rights.

In deciding whether Broadcom or Apple willfully infringed, you should consider all of the facts surrounding the infringement including: whether Broadcom or Apple intentionally copied Caltech's patented technology in developing the accused products or methods; whether Broadcom or Apple knew, or should have known, that its conduct involved an unreasonable risk of infringement; and whether Broadcom or Apple had a reasonable belief that at the time of infringement that its products or methods did not infringe the asserted patent.

VI. Damages

I will instruct you about the measure of damages. By instructing you on damages, I am not suggesting which party should win on any issue. If you find that Apple and/or Broadcom infringed any of the five asserted claims herein (Claims 20 and 22 of the '710 Patent, Claims 11 and 18 of the '032 Patent, and/or Claim 13 of the '781 Patent), you must then determine the amount of money damages to be awarded to Caltech to compensate it for the infringement.

The amount of those damages must be adequate to compensate Caltech for any infringement. A damages award should put the patent holder in approximately the financial position it would have been in had the infringement not occurred, but in no event may the damages award be less than a reasonable royalty. You should keep in mind that the damages you award are meant to compensate the patent holder and not to punish an infringer.

Caltech has the burden to persuade you of the amount of its damages. You should award only those damages that it more likely than not suffered. While Caltech is not required to prove its damages with mathematical precision, it must prove them with reasonable certainty. Caltech is not entitled to damages that are remote or speculative.

In this case, Caltech is seeking a reasonable royalty for all alleged infringement.

A "royalty" is a payment made to a patent holder in exchange for the right to make, use or sell the claimed invention. This right is called a "license." A reasonable royalty is the payment for the license that would have resulted from a hypothetical negotiation between the patent holder and each alleged infringer taking place at the time when the infringing activity first began. In considering the nature of this negotiation, you must assume that both parties would have acted reasonably and would have entered into a license agreement. You must also assume that both parties believed the patent was valid and infringed. Your role is to determine what the result of that negotiation would have been. The test for damages is what royalty would have resulted from the hypothetical negotiation and not simply what either party would have preferred.

A royalty can be calculated in several different ways and it is for you to determine which way is the most appropriate based on the evidence you have heard. You should consider all the facts known and available to the parties at the time the alleged infringement began. Some of the factors you may consider in making your determination are:

- (1) The value that the claimed invention contributes to the accused product.
- (2) The value that factors other than the claimed invention contribute to the accused product.
- (3) The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been

reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee – who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention – would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license.

(4) Comparable license agreements, such as those covering the use of the claimed invention or similar technology.

One way to calculate a royalty is to determine what is called an “running royalty.” To calculate a running royalty, you must first determine the “base,” that is, the quantity of products on which the alleged infringer is to pay royalties. You then need to multiply that base by the royalty rate that you find would have resulted from the hypothetical negotiation.

You may decide that the appropriate royalty that would have resulted from a hypothetical negotiation is a fixed amount per unit sold. If you do, the royalty would be that fixed amount times the number of units sold.

Another way to calculate a royalty is to determine a one-time lump sum payment that the alleged infringer would have paid at the time of the hypothetical negotiation for a license covering all sales of the licensed product, both past and future. This differs from payment of a running royalty because, with a running royalty, the licensee pays based on the number of actual licensed products it sells. When a one-time lump sum is paid, the alleged infringer pays a single price for a license covering both past and future sales.

In this case, the asserted patents are alleged to cover only one component of the product that Broadcom or Apple imports, uses, or sells. It is Caltech’s burden to demonstrate what value that component has added to the product as a whole and to separate the value of the patented contribution from the value of other parts of the product that are not attributable to the patented invention. The ultimate combination of royalty base and royalty rate must reflect the value attributable to the allegedly infringing feature of the product, and no more.

It is up to you, based on the evidence, to decide what type of royalty is appropriate in this case.

In determining the amount of damages, you must determine when the damages began. In this case, if you find infringement of either the ‘710 patent or the ‘032 patent, damages should be calculated beginning on May 26, 2010. If you find only the ‘781 patent infringed, damages should be calculated as of the date the patent issued or the date the infringement began, whichever was first.

If you find only induced infringement, damages should be calculated as of the date the lawsuit was filed: May 26, 2016.

IV. Concluding Instructions

Before you begin your deliberations, elect one member of the jury as your presiding juror. The presiding juror will preside over the deliberations and serve as the spokesperson for the jury in court.

You shall diligently strive to reach agreement with all of the other jurors if you can do so. Your verdict must be unanimous.

Each of you must decide the case for yourself, but you should do so only after you have considered all of the evidence, discussed it fully with the other jurors, and listened to their views.

It is important that you attempt to reach a unanimous verdict but, of course, only if each of you can do so after having made your own conscientious decision. Do not be unwilling to change your opinion if the discussion persuades you that you should. But do not come to a decision simply because other jurors think it is right, or change an honest belief about the weight and effect of the evidence simply to reach a verdict.

Because you must base your verdict only on the evidence received in the case and on these instructions, I remind you that you must not be exposed to any other information about the case or to the issues it involves. Except for discussing the case with your fellow jurors during your deliberations:

Do not communicate with anyone in any way and do not let anyone else communicate with you in any way about the merits of the case or anything to do with it. This includes discussing the case in person, in writing, by phone or electronic means, via email, via text messaging, or any internet chat room, blog, website or application, including but not limited to Facebook, YouTube, Twitter, Instagram, LinkedIn, Snapchat, or any other forms of social media. This applies to communicating with your family members, your employer, the media or press, and the people involved in the trial. If you are asked or approached in any way about your jury service or anything about this case, you must respond that you have been ordered not to discuss the matter and to report the contact to the court.

Do not read, watch, or listen to any news or media accounts or commentary about the case or anything to do with it; do not do any research, such as consulting dictionaries, searching the Internet, or using other reference materials; and do not make any investigation or in any other way try to learn about the case on your own. Do not visit or view any place discussed in this case, and do not use Internet programs or other devices to search for or view any place discussed during the trial. Also, do not do any research about this case, the law, or the people involved—including the parties, the witnesses or the lawyers—until you have been excused as jurors. If you happen to read or hear anything touching on this case in the media, turn away and report it to me as soon as possible.

These rules protect each party's right to have this case decided only on evidence that has been presented here in court. Witnesses here in court take an oath to tell the truth, and the accuracy of their testimony is tested through the trial process. If you do any research or investigation outside the courtroom, or gain any information through improper communications, then your verdict may be influenced by inaccurate, incomplete or misleading information that has not been tested by the

trial process. Each of the parties is entitled to a fair trial by an impartial jury, and if you decide the case based on information not presented in court, you will have denied the parties a fair trial. Remember, you have taken an oath to follow the rules, and it is very important that you follow these rules.

A juror who violates these restrictions jeopardizes the fairness of these proceedings. If any juror is exposed to any outside information, please notify the court immediately.

If it becomes necessary during your deliberations to communicate with me, you may send a note through the bailiff, signed by your presiding juror or by one or more members of the jury. No member of the jury should ever attempt to communicate with me except by a signed writing; I will communicate with any member of the jury on anything concerning the case only in writing, or here in open court. If you send out a question, I will consult with the parties before answering it, which may take some time. You may continue your deliberations while waiting for the answer to any question. Remember that you are not to tell anyone – including me – how the jury stands, numerically or otherwise, until after you have reached a unanimous verdict or have been discharged. Do not disclose any vote count in any note to the court.

A verdict form will be prepared for you. Please follow the instructions on the form with care. After you have reached unanimous agreement on a verdict, your foreperson should complete the verdict form according to your deliberations, sign and date it, and advise the clerk or bailiff that you are ready to return to the courtroom.